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ABSTRACT

The report presents the results of a longitudinal study that sought to determine if children who participated in Head Start preschool programs demonstrated higher levels of achievement in elementary school, as evidenced by scores on the Stanford Achievement Test in third-grade and first-grade teacher reports. The study involved students who received Head Start services in Broward County, Florida, during 1988-89 and who remained enrolled in county schools through 1993-94, along with 50 first-grade teachers. The study found that although the first-grade teachers indicated that Head Start participation had a positive impact on school readiness, analysis of achievement test scores in third grade indicated no statistically significant differences between former Head Start participants and those not attending Head Start. Two appendices provide a statistical analysis of the achievement test scores. Contains 23 references. (MDM)

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ED 388 400

Dr. Frank R. Petruzielo
Superintendent of Schools

# Head Start Standardized Test Performance

The School Board of Broward County, Florida

Dr. Everett Abney, Sr.
Associate Superintendent
Policy Planning, Accountability, Desegregation and Technology

Dr. Katherine A. Blasik
Director, Research and Evaluation

Dr. Karen Knight
Evaluator

Robert D. Parks, Chairperson
Miriam M. Oliphant, Vice Chairperson

Karen Dickerhoof
Eileen S. Schwartz
Toni J. Siskin
Diana Wasserman
Lois Wexler

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## EXECUTIVE SUMMARY
## HEAD START STANDARDIZED TEST PERFORMANCE

### Program Description

Head Start is a federally-funded program designed to provide preschool children of low-income families with comprehensive programs and services. The children are placed in a preschool environment that gives them a "head start" in education.

Head Start is tied to Goal 1 of Florida's Blueprint 2000: "Readiness to Start School." Additionally, the Head Start program addresses one of Broward County Public School's Major System Priorities: "Improving Student Achievement and School Effectiveness."

In Broward County during the 1993-94 school year, 1,613 preschool children participated in the Head Start program in 42 elementary schools. The families of these students were at or below the federal poverty line of $14,350 for a family of four before enrollment (Department of Health and Human Services, 1993).

### Goal of the Report

The goal of this report is to present outcome data addressing the question:

> Are children who participate in Head Start demonstrating higher student achievement compared to non-Head Start participants as evidenced by scores on the Stanford Achievement Tests?

### Findings

Head Start data has not provided a link between participation in the program and elevated achievement scores for its participants enrolled in 1988-89.

### Recommendations

1. The success of the Head Start program in positively affecting student achievement cannot be tied to a single year of data. Longitudinal research including a review of the 1990-91 and subsequent cohort years shall be conducted in order to identify the degree to which Head Start and the continuum of support through Grade 12 realizes student achievement gains.

2. A plan for providing a continuum of comprehensive support services beyond Head Start participation shall be developed to ensure sufficient duration of prevention programs that will increase the likelihood of long term gains. The plan shall include social and health services, as well as academic and behavioral support.

3. Students shall be provided with modification of the learning process in the early grades, blending direct instruction and

other approaches such as whole language and integrated reading.

4. Markers or indicators shall be available for student progress for grades K through 2. Failing to document a student's progress through testing or assessment until the third grade, may preclude attention to special needs and affect our ability to assess skills of teaching in the lower grades.

**THE SCHOOL BOARD OF BROWARD COUNTY, FLORIDA**
**RESEARCH AND EVALUATION**

# Head Start
# Standardized Test Performance

*The purpose of this document is to report on the findings related to standardized test performance of Head Start Program participants in Broward County Public Schools (BCPS), FL. Information was gathered through a) a review of achievement score results for all third graders as this is the most current group for which test scores can be obtained, b) surveys of teachers of randomly selected first graders who attended the Head Start program in 1991-92, c) review of special program enrollment. Analyses of Stanford Achievement Test scores indicate no statistically significant differences between former Head Start participants and those not attending Head Start.*

## Purpose of the Report

The intention of this report is to address the following question:

1. Are children who participate in Head Start demonstrating higher student achievement compared to non-Head Start participants as evidenced by scores on the Stanford Achievement Tests?

For information regarding achievement of the primary goal of Head Start - social competence, refer to the Head Start evaluation presented to the Broward County School Board October 4, 1994.

## Methods

### Participants

- All students who received Head Start services in school year 1988-89, and remained in BCPS through 1993-94. As standardized testing begins in third grade, this was the most recent group of students for which the district has achievement test scores.

- 50 first grade teachers of randomly selected students who formerly attended Head Start in Broward County (1991-92).

### Comparison Sample

The primary criterion for Head Start participation is based on economic status. To address the variation among schools of economic status and student achievement, Department of Research and Evaluation staff grouped schools according to percentage of students participating in the Free and Reduced Lunch program (FRL) and academic achievement as measured by Stanford Achievement Test (herein referred to as Stanford) scores in total reading and mathematics.

The average achievement scores and participation in FRL for

individualized schools are used by cluster analysis to establish homogeneous groupings of students by school. Four clusters were formed by the analysis allowing for comparison of former Head Start students with other students who attend schools that are similar to the schools Head Start students attend. The clusters do not form true comparison groups for two reasons: a) economic guidelines for Head Start are more stringent than the FRL program in that Head Start requires verification of income and about a third of the allowance, and b) Head Start selection guidelines require that the families also have one or more at-risk factors in addition to being income eligible (10% of the slots are reserved for disabilities). However, for the purposes of this report, this comparison group was the closest that could be obtained.

**Data Collection and Availability**

The Broward County Public Schools Student Data Base was used to access Stanford Test score information.

**Limitations of the Evaluation**

A comparison group is difficult for this population as, in addition to the shortcomings already cited, it is problematic to ascertain what other early childhood experiences students may have received. The data available do not identify other preschool experiences and it is impossible to account for the richness of the family environment and other outside factors that may influence a child's later development and achievement. The results of the surveys are being reported without a comparison group and are provided as an informational guide.

**Research Question**

**Are children who participate in Head Start demonstrating higher student achievement compared to non-Head Start participants as evidenced by scores on the Stanford Total Reading and Mathematics Tests?**

National/State Findings. The most controversial conclusions of the HHS's Report concern the assessment of results on categorical measures of school performance. A four-year longitudinal study or the Florida Pre-kindergarten Early Intervention Program completed by Florida State University (FSU) selected nine sample districts that were representative of Florida's demographics (King, Rohani, & Cappellini, 1993). Results, which did not include Broward's students, indicated positive effects occurred during the program year, such as gain in cognitive ability greater than those expected for maturation alone. Superior performance of program children on kindergarten screening tests and on end-of-the-year reading and mathematics achievement tests continued to be present during the first year after program completion. During the second and third years after program completion, however, there were no educationally significant differences between scores of program groups and

comparison groups of children on any of the criterion measures.

Local Findings. First grade teachers of randomly selected local Head Start graduates agree with HHS's 1993 Final Advisory Report, that Head Start has a positive impact on school readiness. The teachers indicate that over three-fourths of the participants were ready to start first grade and over half were ready for the first pre-primer (an indicator of school readiness) at the beginning of first grade. By January 1994 over three-fourths were ready to read from the pre-primer. Over three-fourths of the teachers indicate Head Start students are eager to learn and nearly as many are achieving at the same pace as other students in their class. One teacher remarked that the top 10% of her class are composed of children who had participated in the Head Start program.

**Stanford Achievement Tests**

Charts 1 and 2 employ the clustering technique of grouping like schools in homogeneous fashion. Clusters were statistically formed to include only those students currently receiving FRL. Achievement scores were also used to assist the clustering technique. Stanford reading and math stanine scores were used to supplement FRL data in forming clusters of homogeneous schools. Schools within each cluster exhibited the following characteristics:

- Cluster W schools serve students who exhibit high achievement test scores in both reading and mathematics. A small proportion of these students receives free or reduced lunch.
- Cluster X schools serve students who exhibit average achievement test scores in both reading and mathematics. A slightly below average proportion of these students receives free or reduced lunch.
- Cluster Y schools serve students who exhibit slightly below average achievement test scores in both reading and mathematics. An above average proportion of these students receives free or reduced lunch.
- Cluster Z schools serve students who exhibit low achievement test scores in both reading and mathematics. A high proportion of these students receives free or reduced lunch.

**Chart 1: Comparison Between Former Head Start Students and Current Classmates on Free and Reduced Lunch for Reading 1992-93**

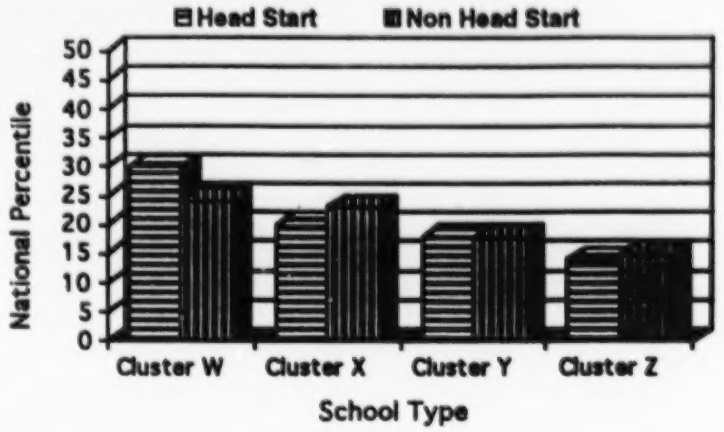
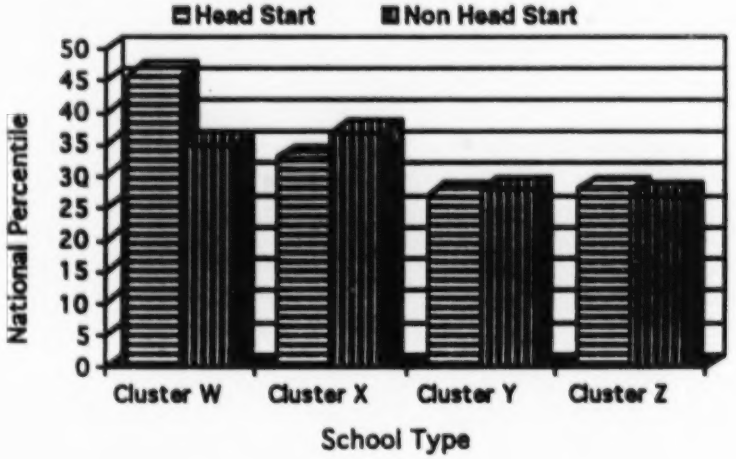
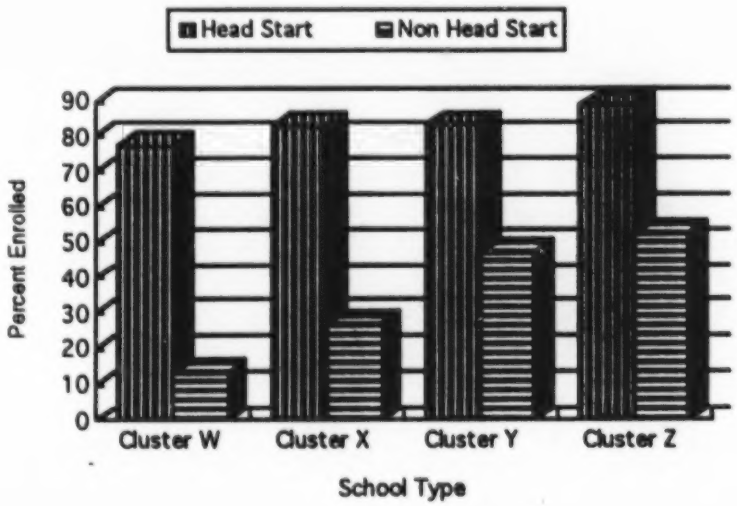



**Chart 2: Comparison Between Former Head Start Students and Current Classmates on Free and Reduced Lunch for Mathematics 1992-93**



Comparing former Head Start and non-Head Start participants who receive FRL revealed no significant differences in reading (Chart 1) and mathematics (Chart 2), as measured by the Stanford scores (see Attachment D). Statistical significance was defined as any mean difference between the two groups that exceeded one-third of a standard deviation. The standard deviation was calculated separately for reading and mathematics scores. The average scores for non-Head Start FRL and Head Start students were then calculated for both groups for reading and math scores. If the difference between the mean scores for the two groups exceeded one-third of a standard deviation, the means for the two groups were regarded as statistically different.

**Chart 3: Comparison Between Former Head Start Students and Their Classmates for Enrollment in FRL**




**Enrollment in Special Programs**

Again, using the clustering technique, Charts 3 through 5 illustrate how former Head Start students in the third grade compare in enrollment in special programs to non-Head Start students in the district (See Attachment E for enrollment by special program). The special programs isolated for comparison include:

- Free/Reduced Lunch (FRL)

- Limited English Proficiency (LEP)
- Exceptional Student Education (ESE)

Districtwide, former participants of Head Start nearly doubled other students in the district in enrollment for FRL. This would be expected as those attending Head Start had to verify economic need in the first place. A significantly smaller number of students formerly enrolled in Head Start attended LEP classes (Chart 4) than non-Head Start students except in Cluster W. The percentage of Head Start students classified as ESE (gifted were excluded) compared with non-Head Start students was fewer in Cluster W, X, and Y schools (Chart 5). In Cluster Z schools, ESE participants numbered more than non-Head Start students. Gifted enrollments were less than one percent of the population.

**Chart 4: Comparison Between Former Head Start Students and Their Classmates for Enrollment in LEP**

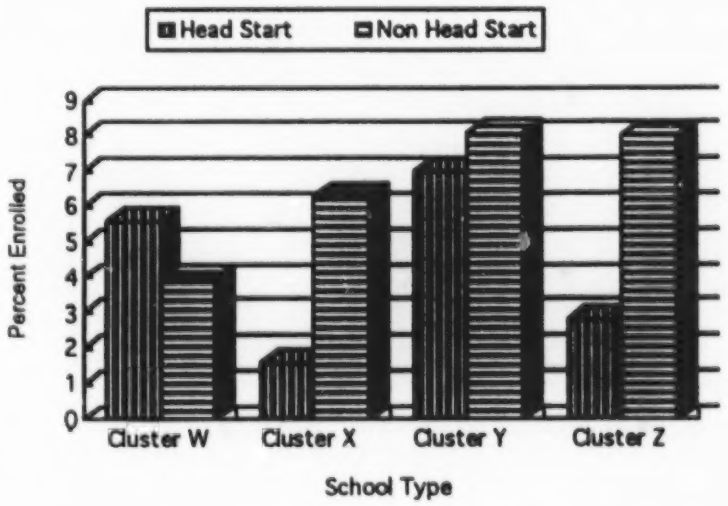
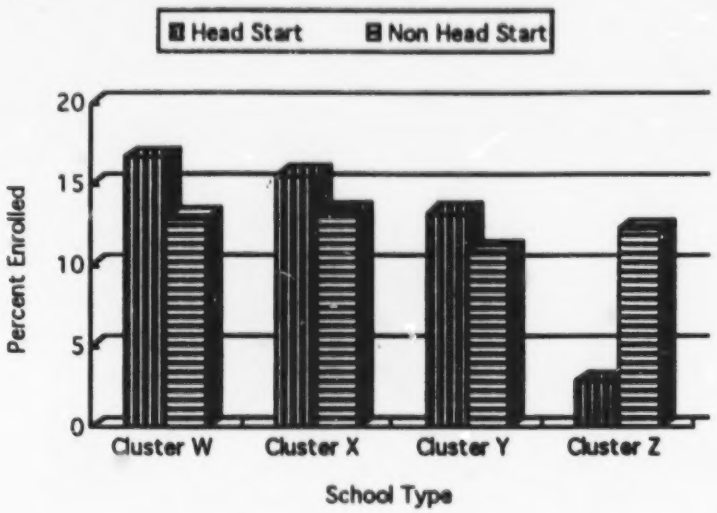


**Chart 5: Comparison Between Head Start Students and Their Classmates for Enrollment in ESE Programs**




Of the 488 students who attended Head Start in the 1988-89 school year, 469 (96%) are still enrolled in BCPS. Of the 469 previous participants, less than 64% has been traced to the third grade. Districtwide 15,776 children attended kindergarten in 1989-90 and 12,212 (77.4%) remain in the system. Of those children, 9,472 (77.6%) were traced to the third grade.

Changing schools from one year to the next has been regarded as one possible factor that may influence student achievement. Thirteen percent of the former Head Start population attending the third grade changed schools. Comparable data is not available districtwide.

**Discussion**

Head Start data has not provided a link between participation in the program and elevated achievement scores for its participants enrolled in 1988-89. A causal effect concerning improvement of student achievement cannot be substantiated. Examining test scores at the end of the third grade reveals district achievement deficiencies. Most former Head Start and FRL students scored in the bottom national quartile (i.e., at or below the 25th national percentile rank) when measured with the Stanford at the end of the third grade. This finding does not imply that the Head Start program in the BCPS has failed in its mission to provide students with a "head start" in education. After all,

the Head Start program provides services to students for only one year when they are four years old. By the time these students reach the end of the third grade, four years of additional schooling will have occurred. Instead, this finding demonstrates that from age four to approximately age nine, students and families targeted for Head Start services have not received the necessary complement of educational services that would demonstrate reasonable promise of producing achievement levels among these students that are comparable to national norms.

This may further emphasize the need of placing Head Start within a continuum of services and support to children and families served by the program. A recent study by Yoshikawa (1994) indicates that the minimum length for successful prevention programs was two years and that programs such as Head Start, a one year preschool program, may not be of sufficient duration to achieve long-term academic gains.

The recently released national report regarding Head Start prepared by the Advisory Committee on Head Start Quality and Expansion (1993) includes a recommendation to strengthen the role of research. The report suggests that Head Start adopt the role as a national laboratory for best practices in early childhood and family support services in low-income communities. Among the actions recommended are:

- build a strong and enduring infrastructure for Head Start research to ensure that Head Start is able to carry out its leadership role on an ongoing basis.
- conduct longitudinal research on children and families served in Head Start programs.
- Expand the partnership between research and practitioners by encouraging better communication and better utilization of data.

**Recommendations**

1. The success of the Head Start program in positively affecting student achievement cannot be tied to a single year of data. Longitudinal research, including a review of the 1990-91 and subsequent cohort years, shall be conducted in order to identify the degree to which Head Start and the continuum of support through Grade 12 produces student achievement gains.

2. A plan for providing a continuum of comprehensive support services beyond Head Start participation shall be developed to ensure sufficient duration of prevention programs that will increase the likelihood of long-term gains. The plan shall include social and health services, as well as academic and behavioral support.

3. Students shall be provided with modification of the learning

process in the early grades, blending direct instruction and other approaches such as whole language and integrated reading.

4. Markers or indicators shall be available for student progress for grades K through 2. Failing to document a student's progress through testing or assessment until the third grade, may preclude attention to special needs and affect our ability to assess skills of teaching in the lower grades.

## Attachment A

## Stanford Achievement Tests

| Group | Stanford Achievement Tests | | | |
|---|---|---|---|---|
| | Total Reading, 1993 | | Total Math, 1993 | |
| | Number | Mean | Number | Mean |
| Students Attending Cluster W Schools | | | | |
| Free/Reduced Lunch Students | 548 | 24 | 563 | 39 |
| Former Head Start | 13 | 30 | 14 | 46 |
| Non-Head Start | 535 | 24 | 549 | 35 |
| Students Attending Cluster X Schools | | | | |
| Free/Reduced Lunch Students | 1226 | 23 | 1259 | 37 |
| Former Head Start | 48 | 20 | 53 | 33 |
| Non-Head Start | 1178 | 23 | 1206 | 37 |
| Students Attending Cluster Y Schools | | | | |
| Free/Reduced Lunch Students | 1829 | 18 | 1891 | 28 |
| Former Head Start | 92 | 18 | 91 | 27 |
| Non-Head Start | 1737 | 18 | 1800 | 28 |
| Students Attending Cluster Z Schools | | | | |
| Free/Reduced Lunch Students | 948 | 15 | 1001 | 27 |
| Former Head Start | 59 | 14 | 63 | 28 |
| Non-Head Start | 889 | 15 | 938 | 27 |

* *Averages were determined on the basis of standard scores, then converted to national percentile ranks.*

Note: This table only includes students who qualify for free or reduced lunch.

Attach

**Third Grade Placements in Special Programs for Former Head Start and Non-Head Start Students by Cluster**

| Group | Percentage of Students Enrolled by Program | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | FRL | | LEP | | ESE* | | Gifted | |
| | # | % | # | % | # | % | # | % |
| Students Attending Cluster W Schools | | | | | | | | |
| All Students (N=4156) | 574 | 13.8 | 166 | 4 | 540 | 13 | 2 | .04 |
| Former Head Start | 14 | 77.8 | 1 | 5.6 | 3 | 16.7 | 0 | 0 |
| Non-Head Start | 559 | 13.5 | 166 | 4 | 534 | 12.9 | 2 | .04 |
| | | | | | | | | |
| Students Attending Cluster X Schools | | | | | | | | |
| All Students (N=4577) | 1272 | 27.8 | 284 | 6.2 | 609 | 13.3 | 105 | 2.3 |
| Former Head Start | 53 | 82.8 | 1 | 1.6 | 10 | 15.6 | 0 | 0 |
| Non-Head Start | 1223 | 27.1 | 284 | 6.3 | 600 | 13.3 | 108 | 2.4 |
| | | | | | | | | |
| Students Attending Cluster Y Schools | | | | | | | | |
| All Students (N=4050) | 1936 | 47.8 | 324 | 8 | 4455 | 11 | 28 | .7 |
| Former Head Start | 95 | 83.3 | 8 | 7 | 15 | 13.2 | 1 | .9 |
| Non-Head Start | 1842 | 46.8 | 319 | 8.1 | 429 | 10.9 | 28 | .7 |
| | | | | | | | | |
| Students Attending Cluster Z Schools | | | | | | | | |
| All Students (N=1880) | 1011 | 53.8 | 147 | 7.8 | 224 | 11.9 | 0 | .01 |
| Head Start | 63 | 88.7 | 2 | 2.8 | 2 | 2.8 | 1 | .01 |
| Non-Head Start | 950 | 52.5 | 14 | 8 | 223 | 12.3 | 0 | 0 |

* All special education programs except gifted

Note: Students in former Head Start groups are small in number, therefore, caution should be employed when comparing the two groups